

A NEW SUBSPECIES OF *HARNIERIA KEMPEANA* (ACANTHACEAE) FROM WESTERN AUSTRALIA

B.J. Lepschi

Western Australian Herbarium, Locked Bag 104, Bentley Delivery Centre, WA 6983

Abstract

Harnieria kempeana (F. Muell.)R.M. Barker subsp. *rhadinophylla* Lepschi, a taxon endemic to North West Cape, Western Australia, is described and illustrated. A key to the subspecific taxa of *Harnieria kempeana* is provided.

Introduction

Harnieria kempeana (F. Muell.)R.M. Barker [syn. *Sarojusticia kempeana* (F. Muell.)Bremek. ex Hj. Eichler] has been considered to have a disjunct range in the eremean regions of central and western Australia. Two subspecies have previously been recognised: subsp. *kempeana* in the Alice Springs area of the Northern Territory, and subsp. *muelleri* (R.M. Barker)R.M. Barker in the Murchison and Gascoyne regions of Western Australia (Barker 1986). A third subspecies, endemic to the Cape Range area south-south-west of Exmouth, Western Australia, has only recently been recognised as a new taxon within *H. kempeana*, and is here described as new.

There is disagreement as to generic limits within the tribe Justicinae, of which *Harnieria* Solms-Laub. is a member; these are discussed by Barker (this volume), whose concepts are followed here.

Taxonomy

Harnieria kempeana (F. Muell.)R.M. Barker, J. Adelaide Bot. Gard. 17 (1996) 150.

Sarojusticia kempeana (F. Muell.)Bremek. ex H. Eichler, Suppl. Black's Fl. S. Austral. (1965) 284. For additional synonymy and notes on nomenclature see Barker (1986, 1996).

For descriptions, notes and illustrations of *H. kempeana* subsp. *kempeana* and subsp. *muelleri* (as *Sarojusticia*) see Barker (1986).

Key to subspecies of *Harnieria kempeana*

- 1 Leaves and leaf-like bracts narrowly to very-narrowly oblong or \pm linear (less often narrowly to linear-obovate or elliptic, very rarely obovate), lamina (2.8-) 6–20 times longer than broad; margin always entire. Exmouth area, Western Australia.....subsp. *rhadinophylla*
- 1: Leaves and leaf-like bracts orbicular to ovate, or elliptic to obovate or narrowly obovate, lamina 1.2–4.3 times longer than broad; margin entire, irregularly crenate or 2–5 toothed..... 2
- 2 Leaves and leaf-like bracts distinctly 2–3 (-5) toothed along one side, orbicular to ovate. Stigma distinctly capitate. Hairs on stems straight, spreading. Alice Springs area, Northern Territory subsp. *kempeana*
- 2: Leaves and leaf-like bracts entire to irregularly crenate, orbicular to elliptic or obovate to narrowly obovate. Stigma subcapitate. Hairs on stems usually retrorse to recurved, generally appressed. Eremeian Western Australia..... subsp. *muelleri*

Harnieria kempeana (F. Muell.)R.M. Barker subsp. *rhadinophylla* Lepschi, *subsp. nov.*

A subsp. *muelleri* lamina anguste ad angustissime oblonga aut aliquantum lineari, interdum anguste ad angustissime lineare-obovata aut lineare-elliptica, longitudine (2.8-) 6–20 plo longiora quam latae, margine semper integro differt.



Type: North West Cape, c. 10 km south of the centre of Exmouth, 24.vii.1995, M.E. Trudgen 12864 (holo: PERTH 04177878; iso: AD, CANB, K, L).

Erect or sprawling, spreading, straggly shrub to c. 1 m; vegetative parts, calyx, corolla and capsule densely hairy with short, spreading, whitish eglandular hairs ("conical bristles" of Barker 1986). *Leaves* and leaf-like bracts subsessile or petiole to 1.5 mm long; lamina narrowly to very-narrowly oblong or \pm linear, less often narrowly to linear-obovate or elliptic, very rarely obovate, $6\text{--}33 \times 1\text{--}4.6$ mm, (2.8–) 6–20 times longer than broad; base attenuate, apex obtuse to acute, margin entire, hairy. *Inflorescence* of solitary, subsessile flowers in axils of leaf-like bracts. *Bracteoles* similar in form, subsessile or petiole to 0.5 mm long, lamina (1.5–) $2\text{--}2.7 \times 0.4\text{--}0.6$ (–0.8) mm, hairy. *Calyx* 6.5–9 mm long, hairy. *Corolla* 12–14.5 mm long, deep pink to intense magenta with white palate, hairy externally. *Staminal filaments* free for 5.0–5.5 mm, proximally hairy, white; upper anther cell 1.0–1.3 mm long, lower anther cell 1.2–1.3 mm long, basal appendage 0.4–0.5 mm long. *Ovary* glabrous, sparsely hairy distally; style 6.0–9.0 mm long with scattered hairs in the proximal portion, stigma subcapitate. *Capsule* (7–) 8–10 mm long, glabrescent. *Seeds* \pm ovate, flattened, verrucose, pale brown, turning dark brown upon maturity. Fig. 1.

Specimens examined (all cited)

WESTERN AUSTRALIA: *A.S. George 1311*, Cape Range, N of Charles Knife road, 30.viii.1960 (CANB, PERTH 2 sheets); *A.S. George 6547*, W of No. 2 oil well site, Cape Range, 23.v.1965 (PERTH); *L. Sweedman 3435*, Off Yardie Creek road, 19.ix.1994 (KPBG); *T. Tapper 64*, Cape Range National Park, Pilgramunup Gorge, 1.viii.1987 (PERTH).

Distribution: Currently known only from the Cape Range, Western Australia, south-south-west of Exmouth. Map 1.

Ecology

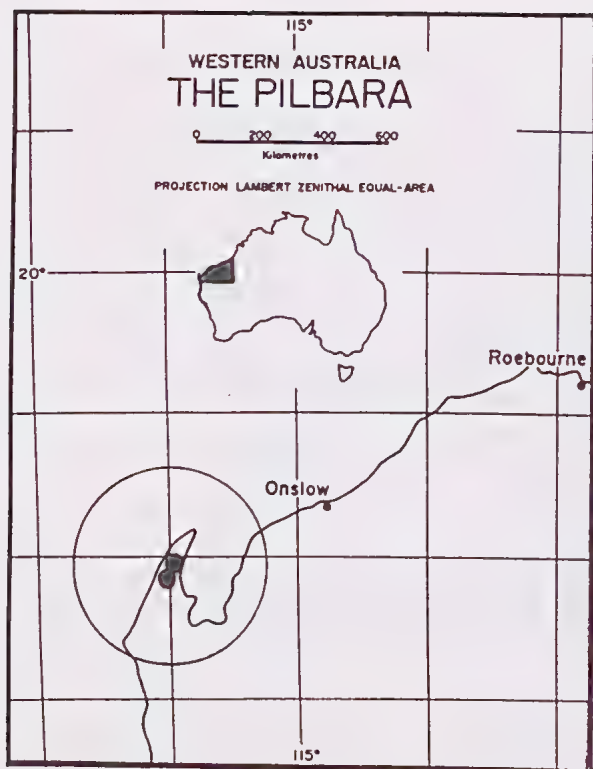
Detailed ecological data is scant, but the new taxon is apparently restricted to areas of limestone, where it occurs along creeks and gorges (rocky watercourses are also the preferred habitat of the other subspecies of *H. kempeana* (see Barker 1986)). At the type locality, the habitat was described as the edge of a small floodplain next to a creek running between limestone ridges, with the substrate as a humus layer over rich, brown calcareous loam with some calcareous pebbles. Vegetation at the type locality was *Eucalyptus* cf. *hamersleyana* mallee low open forest to low closed forest over *Acacia alexandri*, *A. pyrifolia* (spindly form), *Senna artemisioides* subsp. *oligophylla* (Cape Range form) high open shrubland over *Olearia* sp. shrubland, with a variety of grasses, herbs and shrubs as minor components. Label data on *Sweedman 3435* records *Grevillea*, *Ipomoea* and *Acanthocarpus* as associated vegetation.

Phenology: Flowering and fruiting recorded May to September.

Notes

Variation in *Harnieria kempeana* appears to be clinal (supporting Barker's suggestion (pers. comm.) that the disjunct populations are relicts of a once wider distribution), with leaves becoming shorter and broader, and also with a greater degree of incision and lobing of the leaf margin, from west to east within the species range. Subsp. *rhadinophylla* is the western extreme of this variation, possessing very narrow leaves with consistently entire margins. The indumentum of subsp. *rhadinophylla* (i.e. short, spreading, whitish eglandular

Fig. 1. *Harnieria kempeana* (F. Muell.) R.M. Barker subsp. *rhadinophylla* Lepschi. A, flowering branchlet; B, leaves (broader leaves are from the lower nodes of the branchlet of one portion of this collection). (A, *Trudgen 12864*; B, *George 1311*).



Map 1. Distribution of *Harnieria kempeana* subsp. *rhadinophylla*.

hairs) is similar to that of subsp. *kempeana*, although some collections of subsp. *muelleri* also have an indumentum of (or approaching) this type (e.g. *Blackall* 224, *De Jong* 43481-7, *Wilcox* 99 (pro parte), all PERTH). The subcapitate stigma of subsp. *rhadinophylla* is a character also shared by subsp. *muelleri*.

Conservation status

*CALM Conservation Codes for Western Australia Flora: Priority 2. Although restricted in range, at least two populations are conserved within the Cape Range National Park; oil drilling activities on the North West Cape may be a possible threat to some populations. The type population consisted of approximately 15 plants, with another similar sized population c. 700 metres upstream.

Etymology: From the Greek, *rhadi-nos* (slender), and *phyllon* (leaf), in reference to the narrow leaves of this subspecies in comparison to the other subspecies.

Acknowledgements

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References

- Anon. (1996). Conservation codes for Western Australian flora. *Nuytsia* 10: 471.
Barker, R.M. (1986). A taxonomic revision of Australian Acanthaceae. *J. Adelaide Bot. Gard.* 9: 1-286.

* For definitions of the conservation codes currently being used by the Western Australian Department of Conservation and Land Management see Anon. (1996).